## JPL offers \$1.25 million for well cleanup

By DOUGLAS JEFFREY Staff Writer

After more than three years of negotiations, Jet Propulsion Laboratory officials presented the city of Pasadena with \$1.25 million in connection with the city's contaminated water wells.

This initial payment represents the first of more than \$3 million JPL will pay to the city from NASA funds during the next three years to fund imported water purchases and a temporary treatment center, said Pasadena spokeswoman Wendy Casper.

The \$2.3 million temporary treatment plant should deal with the contamination problem for at least three to five years, according to officials.

Negotiations for a long-term solution will wait until the temporary plant's effectiveness is demonstrated.

Traces of organic compounds or solvents were first detected in city wells in and around the Arroyo Seco in January 1980, Casper explained.

A 1986 engineering study funded by Pasadena and JPL discovered that the laboratory was "the most likely source" of the pollution, Casper said.

Pasadena and JPL officials set aside questions over JPL's liability for the contamination with an agreement to build an appropriate plant and significantly contribute to its costs.

Beginning in 1985, Pasadena closed four wells. Others were closed in 1986 and two in 1989 forcing them to buy water from Northern California and from the Colorado River via the Metropolitan Water District at more than \$300,000 a year.

"This plan gives both parties the time to learn more about the contamination and JPL's responsibility and will avoid having to design a permanent plant while the problems aren't yet fully understood," said JPL spokesman Jim Doyle.

The contamination most likely occurred during the 1940s and 1950s resulting from the disposition of solvents and other cleaning materials while JPL was a U.S. Army ballistic missile facility, Doyle said.

"At the time, no one apparently knew that dumping solvents into the ground was dangerous," he said.

The National Aeronautics and Space Adminsistration was created in 1958, and JPL was developed the following year, he noted. When the facility was an Army ballistic missile facility, corporal and sergeant rockets were among the rockets designed there.

Ed Aghjayan, Pasadena's deputy city manager and head of the negotiating team, said his city is pleased with JPL's cooperation in the matter.

"With this effort, Pasadena and JPL are taking a leadership role to work towards a solution to a serious enveronmental problem rather than to become involved in years of litigation," he said.

Pasadena officials anticipate plant operations will begin in July.

"We should be delivering clean and safe drinking water to our citizens from our wells rather than depending upon already strained imported water supplies," he said.

SCIENCE, VOL. 247

2 MARCH 1990

AAAS Rides Electronic Wave

If electronic journals are the wave of the future, then the cry from AAAS officials is "Surfs up." The association has decided to get ahead of the curl by forming a joint venture with OCLC, the Ohio-based Online Computer Library Center, to produce a peer-reviewed electronic science journal.

The new journal, expected to come on line some time in the next 18 months, is intended to complement traditional print publications—including Science—not replace them, says Richard S. Nicholson, executive officer of the AAAS and publisher of Science. "It will provide more flexible delivery of information to the scientific community," Nicholson said last week when he announced the new venture.

OCLC currently provides a computerized cataloguing service to more than 10,000 libraries around the world. The joint venture aims to take advantage of OCLC's data delivery expertise and AAAS's experience with scientific publishing. Although many details remain to be worked out, the idea is that every aspect of the journal's production will be handled electronically, from manuscript submission to editing and peer review. Once an article has been "accepted," it will be made instantly available to all subscribers via computer. Data on which an article is based could also be made available in electronic form.

AAAS officials won't say much about their expectations or marketing plans. K. Wayne Smith, president and chief executive officer of OCLC, says he expects the new journal "will benefit both the individual information users, who are members of AAAS, and the institutional users whose libraries are members of OCLC." 

J.P.

SCIENCE, VOL. 247 2 MARCH 1990

## Saturn's hexagon

MAGES of an unusual hexagonal cloud feature that is centered at Saturn's north pole were obtained some 10 years ago by the two Voyager spacecraft during their close encounters with the planet. The gigantic "stationary" hexagon is embedded in a fastmoving (100 meters per second) jet stream; it is apparently shaped and constrained by the jet stream and by nearby anticyclonic ovals. Allison et al. propose that the hexagon is a vertically trapped atmospheric Rossby wave, one of the

large-scale, low-frequency oscillations that also characterizes circulation patterns in the earth's atmosphere and oceans (page 1061). Hubble telescope observations during the 1990s should provide some additional information about Saturn's atmosphere, but thereafter the next planned observations of Saturn will be made in the 21st century by the Cassini orbiter. In the meantime. therefore, understanding of the structure and dynamic properties of the planet's deep atmosphere must come from model building and from inferences based on the previously recorded largescale features such as this.